IN THE UNITED STATES DISTRICT COURT

FOR THE SOUTHERN DISTRICT OF NEW YORK

- - - -
LEIGHTON TECHNOLOGIES, LLC,)

plaintiff,)

vs.) Case No.

) 04 Civ. 02496 (CM)

OBERTHUR CARD SYSTEMS, S.A.)

and OBERTHUR CARD SYSTEMS)

OF AMERICA CORP.,)

defendants.)

(Volume III - pages 522 through 875)

Continued videotaped deposition of KEITH LEIGHTON, a witness herein, called by the defendants as if upon cross-examination, and taken before David J. Collier, RPR, Notary Public within and for the State of Ohio, pursuant to Notice of Deposition and pursuant to the further stipulations of counsel herein contained, on Monday, the 23rd day of October, 2006 at 8:02 a.m., at the offices of Tackla & Associates, 1020 Ohio Savings Plaza, City of Cleveland, County of Cuyahoga and the State of Ohio.



```
Yes.
    A
1
         Did the heating step follow the -- I'm
2
    sorry. Did the cooling step follow the heating
3
    step?
4
         Yes.
5
    A
         Was it immediate?
6
         They had a problem with their laminator
7
    because they modified their rams and the
8
    plumbing from the pump.
9
         All right. Yeah. You said this at your
10
    earlier deposition, it was -- it was a printed
11
    circuit board laminator; is that right?
12
         Right. That's correct.
    Α
13
         And it was designed so that the pressure
14
    during cooling would be less than during
15
    heating, generally?
16
          We didn't actually know the pressures.
17
          Okay.
18
          Because they have a bar pressure on that
19
     laminator that they could only get a pump
20
     pressure reading, but on this laminator that
21
     Motorola had, they had the hot side a large ram,
22
     the cold side was a smaller ram, and those
23
     should actually be reversed for card
24
     manufacturing purpose.
25
```

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```
"pump pressure"?
1
         Correct.
    A
2
         So the pump on the press could apply up to
3
    another 1,000 pounds or so on top of the weight
4
    of all the platens?
5
         Right. Having a large ram on the hot side,
6
    when you start to raise, the pumped fluid goes
7
    into the ram, it's going to go to the biggest
8
    opening first.
9
         Okay.
10
         Lesser resistance. The cold side,
11
    unfortunately, raised up slower than the hot
12
    side did in closing the laminator, then I had to
13
    equalize. So I to this day have no idea what
14
    the pressures were on the hot or the cold side.
15
         Okay. But you understand --
16
         Or the bar pressures.
17
         You understand that -- I'm not a -- I'm a
18
     chemical engineer but I'm not a -- I've never
19
     done anything in this field, okay? So you have
20
     to help me understand the ranges of the
21
     magnitudes of what we're talking about, okay?
22
     And you have to help the judge and the jury
23
     understand the kind of numbers we're dealing
24
     with. Do you understand that?
25
```

```
Vietnamese, at Motorola they have all -- when
1
    they put a notice on the board, it's in about
2
    six languages so everybody can understand it.
3
         Okay. Now, the rams were of different
4
    sizes, correct?
5
         Correct.
6
    A
         And the -- is the amount of pressure that's
7
    applied in either side a function of the size of
8
    the ram?
9
         Yes.
    Α
10
         And how much bigger was the ram on the cold
11
    side than the hot side?
12
          I don't remember that.
    Α
13
         Was it ten times as big?
14
          I can't tell you that.
15
          Okay. Even though the rams were of
16
    different sizes, meaning that a bigger ram could
17
     apply more pressure, right, was it possible in
18
     the Burkle laminator to just not apply as much
19
    pressure using a larger ram and max out the ram
20
     on the cold side?
21
          You would -- they had a tank containing the
22
     hydraulic fluid, a single tank containing your
23
     fluid, you have a pump in there that is pumping
24
     the pressure to the rams, it's going to fill the
25
```

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

```
most -- less resistance first, which would be
the large ram, it would flow in there before it
will fill up the cold side it's going to be
taking all the fluid on the hot side first.
that was proven by the fact that the hot ram
closed first and it was a bigger ram. There was
a dwell time waiting for the cold ram to shut or
come up to pressure.
     Okay. So are you saying that it was
physically impossible, given the size of the
rams and the way the hydraulic system worked, to
have the pressure on the cooling side be greater
than the pressure on the heating side in the
Burkle laminator at Motorola?
     I'm not one of physics, but in my own mind
it was much less, but it did manage to close and
cool down the product, but I'm not sure what the
surface pressure was on that cold side.
    Okay. And whatever temperature you were
able -- I'm sorry. Whatever temperature and
pressure you were able to achieve on the cold
side of the Burkle laminator, the highest
success rate you got was 15 out of 24?
     I don't believe it had any relationship to
the cold side at all. I think they were
```

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```
Because they were continually working on
1
    their laminator. They had the Burkle people out
2
    there while I was there, the circuit boards
3
    burned out and --
4
         But they didn't tell you that they knew
5
    that the rams were reversed as to what they
6
    should be?
7
          No.
    A
8
         But you realized that when you got there --
9
         After I got there.
10
         -- and you told them, and they agreed with
11
    you, of course.
12
         Right.
13
          And they were in the process of trying to
14
     fix that problem?
15
          That's correct.
16
     Α
          And did you help them fix that problem as
17
     well?
1.8
         No.
19
     Α
         You didn't?
20
     Α
         No.
21
          Okay. But you wanted them to be able to
22
     have their press have at least equal pressure
23
     during the heating and cooling?
24
          I tried to deal with what they had. They
25
```

```
had a service man from Burkle doing everything
1
    that they asked him to do.
2
         Right.
3
    0
         And he told them, junk it, get a plastic
4
    card laminator.
5
         Right. But they didn't junk it, right?
    0
6
         That's correct.
7
         That's the laminator that you were forced
    Q
8
    to use when you were consulting for Motorola?
9
          That's all they had when I was there.
10
    Α
         And you knew one problem that you had to
11
    fix was the pressure during heating and cooling
12
    at least had to be the same, the ram pressures
13
    had to be the same, right, or else you weren't
14
    going to make an acceptable card?
15
          In working with it, we tried different
16
    tests.
17
          Okay. And that was one test you tried?
18
          That's one test we tried, yes.
19
         Right. Because that's exactly what you
20
    0
    said earlier, that's why --
21
         Right.
22
         -- that printed circuit board press was not
23
    good for making cards, because the pressures had
24
     to be at least the same in the heating and
25
```

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```
Because they incorporated that into a soft
1
    gel plastic.
2
         Okay. And let's -- that was the next step,
3
    the inlay of the chip and the coil-wound antenna
4
    were incorporated into a gel plastic?
5
         Right. That's correct.
6
    Α
         And how was that done?
7
         I'm not sure of that.
8
         And what did it look like after it was
9
    incorporated in a gel plastic? Did it look like
10
    a --
11
    A It looked like a soft pliable dime-sized
12
    inlay that they pressed in by hand.
13
         And do you remember the dimensions of the
14
    inlay -- well, you just called the antenna and
15
    chip incorporated in a gel as the inlay. That's
16
    still --
17
         Yes.
18
         You're building up the inlay; is that --
19
         That's right.
20
    Α
         -- what you're saying?
21
               Okay. So the first building blocks
22
    are the chip and the antenna and then they added
23
     this gel around it?
24
         Right. At the time I was not involved in
25
```

```
encapsulating that into a gel. This is
1
    something that was brought to me. I'm not sure
2
    who did that. That could have been done at
3
    Motorola.
4
       Yeah. That's fine. I'm not asking you
5
    that. I'm just asking for your memory of it. I
6
    mean, you saw it and you worked with it; is that
7
    right?
8
         Right.
9
    A
         You saw the dime --
10
         For a short period of time. Yes.
11
         Yeah. You saw the dime-sized --
12
         Right.
13
         -- coil and chip --
14
         Right.
15
          -- in a gel, right, at the time?
16
          Right. That's -- that's what they were
17
     using. Then they hand -- handed me --
18
         Let me -- let me just keep asking you the
19
     questions.
20
         Sure. Okay.
21
          I want to get out whatever you want to say,
22
     but I don't want to lose the train of -- my own
23
     train of thought, okay?
24
         Okay.
25
     A
```

Tackla & Associates

```
So do you remember how thick the dime-sized
    0
1
    inlay was after --
2
          No.
3
    A
          -- it was incorporated in the gel?
4
    0
          No.
    Α
5
          Do you remember about how thick it was?
6
    Q
          No.
    A
7
          Do you remember if it was thicker or
8
    thinner than an actual dime?
9
          I can't even honestly say that.
    Α
10
          Okay. And --
11
          15 years ago.
    Α
12
          Right. That's perfectly fine. I just want
13
    to get your best memory, okay?
14
          Um-hum.
    Α
15
          What was the next step in the process, as
16
    you understood it, when Motorola was making this
17
     first dime-sized antenna inlay that they asked
18
     you to work on? You've drawn a PVC sheet; is
19
     that right?
20
         Correct.
21
          After the chip and antenna were
22
     incorporated in the gel, were they placed in the
23
     PVC sheet?
24
          That's correct.
     Α
25
```

Tackla & Associates

```
How were they placed in the sheet, do you
1
    remember?
2
          They placed them in by hand --
3
         Okay.
4
    0
          -- to my knowledge.
5
          That was the next step?
6
          I never followed their manufacturing
7
    process of doing this.
8
         Okay. You had a general understanding
9
10
    though?
         Yeah. They showed me the sheets of how
11
    they were doing it. I never watched them
12
    manufacture that card. They provided me, as I
13
    started to say, with some small dime size,
14
    without the gel, trying to -- thinking I could
15
    come up with a different process.
16
         Okay.
17
         Because they were not satisfied with what
18
     they were doing.
19
          Okay. And then they put -- they put the
20
    gelled inlay into the PVC sheet; is that right?
21
          That's what they were doing, yes.
22
          Do you know, did they glue it or they just
23
    placed it in there?
24
          I'm not sure.
25
     Α
```

```
Okay. Did you work with this configuration
    Q
1
    at all?
2
         No.
3
    Α
         You never laminated a card with this
4
    structure?
5
         No.
6
    Α
         Okay. So if you can just finish up with
7
    your understanding of what other layers Motorola
8
    added to this inlay that we're looking at.
9
    You -- you talked about another sheet that they
10
    put over it with printed material?
11
         Right. I'll illustrate that by putting --
12
    let's see. I'll draw another sheet here. They
13
    had their inlay sheet, they had a bottom sheet
14
    beneath that to encapsulate it.
15
         And was there printing on the sheets, you
16
    said?
17
         Yes, there was.
18
         On both the top and bottom?
19
          I don't recall whether there's anything --
20
     I think that was blank on the bottom. The top
21
    sheet had their logo, Motorola's logo on the
22
23
    top.
         Okay.
24
     Q
          It had a gray background.
25
```

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```
destroyed immediately as soon as they closed the ram on the hot side.

Q Okay.

A That's my opinion. I don't -- I can't
```

6 Q Okay. Well, let's explore that a little 7 bit.

You said that the best rate you got was 15 out of 24, right? At some point before that you got a lower success rate, right? It got better over time as you worked.

12 A Yeah.

8

9

10

11

23

24

25

prove that.

- 13 | Q Did these tests, right?
- 14 A Um-hum. I improved the longer I worked 15 there.
- Q Right. What in your mind led to the increased or improved results over time? What changes in the process did you make that helped to increase the success rate?
- 20 A Increase of pressure and changing the 21 thickness of the pre-lams, of being able to go 22 in there with thicker plastic.
 - Q Okay. Why did the thicker plastic -- did that help to make sure that the chip wouldn't poke through and damage --

```
Α
          That's correct.
 1
 2
     Q
          -- the platen?
 3
     Α
          That's correct.
 4
     Q
          Or the steel?
 5
          Or poke through and destroy the chip. If
     it shows through the pre-lam, it would be done.
 6
 7
          Okay. And how -- and, I'm sorry, you also
     Q
 8
     said increase the --
 9
          I increased the temperature out there of
10
     temperatures that they weren't doing prior to my
11
     coming out there.
12
          Okay. You increased the temperature during
13
     the heating phase.
14
     Α
          Right.
15
          Okay. So in your mind those two factors,
16
     increasing the temperature and increasing the
17
     thickness of the core sheets, allowed you to
18
     make improved cards with embedded electronic
19
     elements?
20
          I got a smoother card but I might have been
21
     destroying chips with both temperature and
22
    pressure.
23
     Q
          Okay. But your rate of destroying the
     chips went down, in other words, you destroyed
24
25
     fewer chips the more you made experimental runs
```

```
at Motorola?
 1
 2
          I can't pin that because I did not have the
     number of electronics to even play with.
 3
          Okay.
 4
          I could get approximately -- when I used
 5
     Α
     two 24 sheets containing electronics, and they'd
 6
 7
     give me 100 of them a day, you could see how
 8
     many times I had to test.
 9
          Right. But the best result you ever got
     was 15 out of 24, right?
10
11
          Correct.
     Α
12
          And a card isn't much good with an
13
     electronic element if the electronics are
14
     squashed, right?
15
     A
          Correct.
16
          So those were two goals you had, right, to
17
     make a thin flat card, right, smooth surface,
18
     right?
19
     A
          It wasn't thin. It was a flat card.
20
     Q
          Okay.
21
    Α
          It was thick.
          Your goals were to make a flat card.
22
    Q
23
          I was told to make a smooth card with the
24
    surface smoothness they wanted of one half a
25
    thousandths of an inch --
```